

spinning the wafer on the rotatable base until the bulk solvent is distributed across the wafer surface;
dispensing photo resist solution on the wafer;
spinning the wafer until the photo resist solution is distributed across the wafer surface; and
dispensing the bulk solvent on the edge and sides of the wafer and on the back of the wafer for edge bead removal and cleanup after distributing the photo resist.

REMARKS

Claims 13, 19, 22, 24, 28, 32, 37, 42, 44, 48, 58 and 61 are amended. Claims 13 - 22, 24 - 29, 31 - 33, 35 - 39, 41 - 42, 44 - 48 and 50 - 61 remain pending in this application.

Applicant has reviewed and considered the Office Action mailed on October 21, 2002. The Office Action is exceptionally lengthy, and contains an exceptionally large number of assertions. Several of the assertions made throughout the Office Action are summarily addressed and traversed in the interest of brevity and maintaining clarity. Applicant submits that this paper is fully responsive to the Office Action. The fact that each and every assertion in this lengthy Office Action is not addressed and traversed in a line-by-line fashion should not be interpreted as an admission of any of the assertions.

Applicant respectfully asserts that the lengthy arguments involve improper hindsight reasoning applied to individual elements and the combination of elements recited in the claims.

For example, page 4 lines 4-7 of the rejection states:

Orth is capable of dispensing the ranges and types of solvents claimed (namely, diacetone alcohol and aliphatic ester herein the ratio of the diacetone alcohol and aliphatic ester range between 10% ester and 90% alcohol to 30% ester and 70% alcohol).

This assertion is traversed. This clearly involves hindsight reasoning. There is no showing or suggestion in Orth to dispense the range and types of solvents claimed (including in the recited ratios). An advantage of this solvent is its lower evaporation rate such that very little solvent is required to achieve good resist thickness profiles.

By way of another example, the rejections states:

It would have been obvious to one of ordinary skill in the art at the time of invention to provide Orth with another photoresist nozzle in order to properly cover the entire surface of the wafer with photoresist as is taught and suggested by Hayes et al.

This assertion is traversed. Applicant notes that the purpose of the third nozzle is to dispense the solvent on the wafer before dispensing the photo resist solution. The purpose is not to cover the entire surface as indicated by the rejection based on the Hayes et al. reference. Thus, the reasoning is flawed and involves hindsight reasoning. Applicant is unable to find in the cited references a showing or suggestion of the recited solvent dispense head with the recited nozzles in the recited orientation and in the recited fluid communication.

By way of another example, the rejection states:

The logic system of Orth, Gordon and Yoda is consider[ed] capable of performing the steps claimed.

This assertion is traversed. Applicant respectfully submits that this statement involves hindsight reasoning as the cited portions of the references relied upon do not show or suggest the recited steps. The independent claims have been amended to recite "to execute" to clarify the recited subject matter.

The claims recite various combinations of these elements. Applicant respectfully submits that the motivation to combine also involved hindsight reasoning, and did not result from suggestions in the references.

§103 Rejection of the Claims

Claims 13 and 15-20 were rejected under 35 USC § 103(a) as being unpatentable over Orth (U.S. Patent No. 5,750,317) in view of Gordon (U.S. Patent No. 5,066,616) and Yoda et al. (U.S. Patent No. 5,876,882). Applicant respectfully traverses the rejection.

This rejection is traversed. With respect to independent claims 13 and 19, Applicant is unable to find, among other things, in the cited portions of the references relied upon in the rejection, either a showing or suggestion of the solvent as recited in the claims. The recited solvent dispense head is in fluid communication with a solvent source that includes the recited solvent ratios. Claims 15-18 depend on independent claim 13, and are believed to be patentable at least for the reasons provided with respect to claim 13. Claim 20 depends on independent

claim 19, and is believed to be patentable at least for the reasons provided with respect to claim 19.

Claims 14 and 21 were rejected under 35 USC § 103(a) as being unpatentable over Orth, Gordon, and Yoda et al. as applied to claims 13 and 19 above, and further in view of Hayes et al. (U.S. Patent No. 5,849,084).

This rejection is traversed. Claim 14 depends on independent claim 13, and is believed to be patentable at least for the reasons provided with respect to claim 13. Claim 21 depends on independent claim 19, and is believed to be patentable at least for the reasons provided with respect to claim 19. Additionally, with respect to claim 21, Applicant is unable to find, among other things, in the cited portions of the references relied upon in the rejection, either a showing or suggestion of the logic control unit, as recited in the claim.

Claim 22 was rejected under 35 USC § 103(a) as being unpatentable over Orth, Gordon, and Yoda et al. as applied to claim 19 above, and further in view of the admitted prior art.

This rejection is traversed. Claim 22 depends on independent claim 19, and is believed to be patentable at least for the reasons provided with respect to claim 19. Additionally, Applicant is unable to find, among other things, in the cited portions of the references relied upon in the rejection, either a showing or suggestion of the solvent, the solvent head, the logic control unit, or the combination thereof as recited in the claim.

Claims 24, 26, and 27 were rejected under 35 USC § 103(a) as being unpatentable over Orth in view of Gordon, Yoda et al., and the admitted prior art.

This rejection is traversed. With respect to independent claim 24, Applicant is unable to find, among other things, in the cited portions of the references relied upon in the rejection, either a showing or suggestion of the solvent dispense head (with the three nozzles in the recited orientation and in fluid communication), the logic control unit or the combination thereof as recited in the claim. Claims 26 and 27 depend on independent claim 24, and are believed to be

patentable at least for the reasons provided with respect to claim 24. Additionally, Applicant is unable to find, among other things, in the cited portions of the references relied upon in the rejection, either a showing or suggestion of a logic control unit to execute the process recited in claims 26 and 27.

Claims 28, 29, 31, 37, 41, and 58-60 were rejected under 35 USC § 103(a) as being unpatentable over Orth in view of Gordon, Yoda et al., Hasebe et al. (U.S. Patent No. 5,658,615), and the admitted prior art.

This rejection is traversed. With respect to independent claim 28, Applicant is unable to find, among other things, in the cited portions of the references relied upon in the rejection, either a showing or suggestion of the solvent dispense head (with the three nozzles in the recited orientation and in fluid communication) the logic control unit to execute the recited process, or the combination thereof as recited in the claim. Claims 29 and 31 depend on independent claim 28, and are believed to be patentable at least for the reasons provided with respect to claim 28.

With respect to independent claim 37, Applicant is unable to find, among other things, in the cited portions of the references relied upon in the rejection, either a showing or suggestion of the solvent in the recited percentage, the solvent dispense head (with the three nozzles in the recited orientation and in fluid communication), the logic control unit to execute the recited process, or the combination thereof as recited in the claim. Claim 40 depends on independent claim 37, and is believed to be patentable at least for the reasons provided with respect to claim 37.

With respect to independent claim 58, Applicant is unable to find, among other things, in the cited portions of the references relied upon in the rejection, either a showing or suggestion of a system that includes the solvent dispense head (with the three nozzles in the recited orientation and in fluid communication), the logic control unit to execute the recited process, or the combination thereof as recited in the claim. Claims 59-60 depend on independent claim 58, and are believed to be patentable at least for the reasons provided with respect to claim 58.

Claim 42 was rejected under 35 USC § 103(a) as being unpatentable over Orth in view of Gordon, Yoda et al., and Hasebe et al.

This rejection is traversed. With respect to independent claim 42, Applicant is unable to find, among other things, in the cited portions of the references relied upon in the rejection, either a showing or suggestion of an apparatus that includes the solvent in the recited percentages, the solvent dispense head (with the three nozzles in the recited orientation and in fluid communication), the logic control unit to execute the recited process, or the combination thereof as recited in the claim.

Claims 32, 33, and 36 were rejected under 35 USC § 103(a) as being unpatentable over Orth in view of Gordon, Yoda et al., the admitted prior art, and Hasebe et al.

This rejection is traversed. With respect to independent claim 32, Applicant is unable to find, among other things, in the cited portions of the references relied upon in the rejection, either a showing or suggestion of an apparatus that includes the solvent dispense head (with the three nozzles in the recited orientation and in fluid communication), the logic control unit to execute the recited process, or the combination thereof as recited in the claim. Claims 33 and 36 depend on independent claim 32, and are believed to be patentable at least for the reasons provided with respect to claim 32.

Claims 25 and 35 were rejected under 35 USC § 103(a) as being unpatentable over Orth, Gordon, Yoda et al., the admitted prior art, and Hasebe et al. as applied to claims 24 and 32 above, and further in view of Ikeno et al. (U.S. Patent No. 4,886,012).

This rejection is traversed. Claim 25 depends on independent claim 24, and is believed to be patentable at least for the reasons provided with respect to claim 24. Claim 35 depends on independent claim 32, and is believed to be patentable at least for the reasons provided with respect to claim 32.

Claims 13-22, 24-29, 31-33, 35-39, 41, and 42 were rejected under 35 USC § 103(a) as being unpatentable over the admitted prior art and Orth. Claims 44-48 and 50-61 were rejected under 35 USC § 103(a) as being unpatentable over the admitted prior art and Orth.

This rejection is traversed. These claims are believed to be patentable at least for the reasons provided above. It is noted that these rejections often use the phrase "capable of" indicating that the rejections rely on hindsight reasoning because the references neither show nor suggest all of the recited elements or the combination of the recited elements the claimed subject matter.

Applicant respectfully requests withdrawal of the rejections, and reconsideration and allowance of the claims. Should the Examiner maintain any of the above rejections, Applicant respectfully requests that the Examiner either provide a reference that shows the elements missing from the previously-relied upon references, or submit an affidavit pursuant to 37 CFR §1.104(d)(3) as evidence of the Examiner's personal knowledge.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6960 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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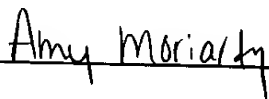
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 21st day of January, 2003.

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